

*A1*  
*Contd*

“Method of Making Reactive Multilayer Foil and Resulting Product” and U.S. Application Serial No. 09/846,422 *Now Abandoned* filed by T.P. Weihs *et al.* concurrently herewith and entitled “Reactive Multilayer Structures For Ease of Processing and Enhanced Ductility”. These three related applications are incorporated herein by reference.

*A1*

Amend the first full paragraph on P. 18, lines 5 - 10 to read as follows:

*A2*

A reactive multilayer braze is formed that is similar to the reactive foils described above, which reacts to form a metallic glass. This multilayer braze gives off heat upon a reaction of its alternating layers. Through a careful selection of reactants that are known to be good glass formers, the braze will form an amorphous final product upon reaction, similar to those in commercial use and to the foils described above. The heat generated by the reacting braze layers reduces the amount of reactive foil required for joining.

*A2*

Amend the last paragraph on P. 18 beginning at line 20 and ending on P. 19, line 2 to read as follows:

*A3*

A semiconductor or microelectronic device is joined to a substrate such as a printed circuit board using a reactive multi-layer foil. Fig. 8 schematically illustrates the joining arrangement wherein the reactive foil 80 is sandwiched between solder layers 81A and 81B, and the sandwich is disposed between the contact lead 82 for the device 83 and the contact surface 84 of the electronic board 85.

*A3*

IN THE CLAIMS

Amend claim 1 to read as follows:

*A4*

1. A method of making a freestanding reactive multilayer foil composed of a plurality of alternating layers that can react exothermically, comprising the steps of:

providing a substrate;

*A4*  
contd

vapor depositing the alternating layers on the substrate to form a reactive multilayer foil having a thickness in the range of about 10 micrometers to about 1 cm, the vapor deposition conditions chosen for low stress so that the product of stress in the film and the film thickness is kept below 1000 N/m; and

separating the multilayer foil from the substrate to provide the freestanding reactive multilayer foil.

Amend claim 7 to read as follows:

*A5*

127. A method of making a freestanding reactive multilayer foil composed of a plurality of alternating layers that can react exothermally, comprising the steps of:

providing a substrate comprising a removable sacrificial layer of copper, brass or photoresist;

vapor depositing the alternating layers on the substrate to form the reactive multilayer foil; and

separating the multilayer foil from the substrate.

#### IN THE ABSTRACT

Please substitute the new Abstract attached hereto:

*A6*

Reactive foils and their uses are provided as localized heat sources useful, for example, in ignition, joining and propulsion. An improved reactive foil is preferably a freestanding multilayered foil structure made up of alternating layers selected from materials that will react with one another in an exothermic and self-propagating reaction. Upon reacting, this foil supplies highly localized heat energy that may be applied, for example, to joining layers, or directly to bulk materials that are to be joined. This foil heat-source allows rapid bonding to

*Al*  
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occur at room temperature in virtually any environment (e.g., air, vacuum, water, etc.). If a joining material is used, the foil reaction will supply enough heat to melt the joining materials, which upon cooling will form a strong bond, joining two or more bulk materials.

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